

# Housing and Mortgage Market Review

HaMMR — Summer 2019

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# Modern American Boomtowns: What Is Their Secret?

The term "boomtown" conjures up images of a bygone era — perhaps old goldrush towns out West or Chicago in the 1800s. But even now there are U.S. cities with sustained, exceptional growth. For example: Between 1950 and 2000, Dallas-Fort Worth's population grew by nearly 1,000%.

Why do some towns have exponential growth and others don't? To answer that question, we start by looking at today's boomtowns and discuss possible drivers before turning to the slowest-growing areas and considering the implications.



Time series analysis reveals that we can see two types of booming areas, ones that have been booming for decades and those that only recently taken off.

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### Modern American Boomtowns: What Is Their Secret? (continued from page 1)



Figure 1 shows some cities that have grown rapidly for decades. Dallas, Texas, is the largest in total number of jobs and by comparing the slope of the line to that of the U.S., you can see how it has grown at an impressive clip. Boomtowns are a diverse lot: from Austin, Texas, which has the state capital and a thriving tech sector, to Orlando, Florida, which is built on entertainment, retirees, logistics and healthcare.

### Figure 1: Total Employment in Thousands in Long-Running Boomtowns



Variations in recessions are also easy to see in Figure 1. Of these cities, Dallas, Texas, had the largest downturn in 2001 as the booming telecom industry went bust, the dot-com bubble burst and the terrorist attacks of Sept. 11 hurt several of the city's vital industries. At the other extreme, Riverside, California, was barely touched by that downturn. While Las Vegas, Nevada, recovered quickly from the recession in 2001, it took the longest to recover from the housing market bust, which is understandable given the mega-sized housing boom-and-bust cycle that took place there.

(continued on page 4)

### Modern American Boomtowns: What Is Their Secret? (continued from page 3)

Figure 2 shows total employment in metros with a more pronounced acceleration in growth after 2010, such as Nashville, Tennessee, San Francisco, California, and smaller cities such as Boise, Idaho.

#### Figure 2: The Total Number of Jobs (in Thousands) Accelerated Recently in Some Metros



For San Francisco, you can see the dot-com boom and bust of the 1990s and the unexpectedly strong boom since 2011 as the tech sector expanded. Boise also accelerated recently due to a flourishing tech sector. Growth in Cape Coral and North Port in Florida is different. It was driven more by the state's increased in-migration in recent years and relatively better affordability compared to the coast. Nashville, like Las Vegas, Nevada, and Orlando, has a robust entertainment sector, while Fresno, California, has booming logistics, healthcare and construction sectors and is benefiting from inmigration from overpriced coastal cities.

Comparing growth rates side-by-side, the next figure shows metros that had the largest percentage increase in total jobs since 2014, among the 100 largest metros. While total employment in the U.S. increased 9.4% over the past five years, a handful of cities managed to grow twice as fast.

### Figure 3: Fastest Growing Job Markets Over the Past Five Years

RANK	METRO	5-YEAR % CHANGE IN EMPLOYMENT	INCREASE IN TOTAL Employment in Past 5 Years (Thous.)	HYPOTHETICAL MEDIAN DTI
1	Cape Coral, FL	23%	51	31%
2	Boise City, ID	21%	60	32%
3	Orlando, FL	21%	233	32%
4	San Francisco, CA	20%	192	84%
5	Riverside, CA	19%	245	38%
6	Nashville, TN	19%	166	26%
7	Austin, TX	19%	170	31%
8	Dallas, TX	18%	409	30%
9	Las Vegas, NV	18%	155	33%
10	Fresno, CA	18%	54	33%
11	North Port, FL	17%	46	33%
12	Ogden, UT	17%	39	28%
13	Phoenix, AZ	17%	310	29%
14	Charleston, SC	17%	53	29%
15	Charlotte, NC	16%	173	26%



The fourth column is the growth in the total number of jobs, in thousands. The table is ranked by percentage growth — if we instead had sorted by counts of net jobs created, the greater New York City area would be number one, with a growth of nearly 700,000 jobs. In terms of percentage increase, New York City, ranked 41 out of the largest 100 metros.

The final column is Arch MI's affordability measure. It is an estimate of the percentage of the median household's income needed to cover mortgage payments on a median-priced home.<sup>1</sup> For the U.S., it is 29%, 5% lower than during the "normal" or typical period of 1987-2004. Except for metros in California, all of the boomtowns still have reasonable affordability, which is helping to sustain the inflow of new workers.

Sources: BLS/Arch MI

(continued on page 6)

### Modern American Boomtowns: What Is Their Secret? (continued from page 5)

#### Is There a Secret Sauce?

Why are some areas growing so much faster than others? The fastest-growing cities are such a diverse group that it's clear there isn't a single secret to success. Even though, on average, larger cities have grown faster than smaller cities since the year 2000, the list above makes it clear that it is not just about starting size. And it's also not just affordability or low taxes, since San Francisco makes the list.

So what drives strong growth? Some of the biggest factors include:

- A relatively more favorable business climate. Texas, Florida and Tennessee are known as low-tax, lowregulation states. For example, it is easy to understand Amazon and investment firm AllianceBernstein moving some operations to Nashville since 1) the cost of living is far better than in Seattle, New York City or Oregon; 2) the quality of life there is high, with Nashville's thriving entertainment scene; and 3) the state of Tennessee has pro-business policies and is very aggressive with relocation incentives.<sup>2</sup>
- Innovation hubs or booming tech sectors. This includes San Francisco, and areas benefiting from overflow from Silicon Valley, such as Austin, Boise, Dallas and Ogden, Utah.
- Location. First, many booming industries have grown out of top universities. Second, in-migration to the South and West from colder climates continues to be

a long-standing trend. Third, as more purchases move online, certain areas are better positioned as logistical/ distribution hubs, such as Riverside, Orlando and Nashville.

Initial advantages matter. Success fosters more success, as communities that attract skilled workers tend to attract even more employers that need them, causing more skilled workers to move there in a virtuous cycle. The flip side is also true: "... communities that fail to attract skilled workers lose further ground," according to UC Berkeley Economist Enrico Moretti.<sup>3</sup> Clearly, San Francisco, Charlotte, North Carolina, and Dallas, among others, benefit from the presence of large, thriving companies.

You can see all of our pro-growth factors at play in the specific case of Amazon's criteria for its second headquarters. The requirements included 1) lots of existing office space with on-site mass transit access and located within 45 minutes of an international airport; 2) more than 1 million people in the metro location; 3) a strong university system; 4) a cultural fit, including having a diverse population; 5) a place where people want to live because of a high quality of life (recreational opportunities, housing costs and availability, general cost of living and crime statistics); 6) "stable and business-friendly regulations and tax structure" and 7) large incentives.

#### The Flip Side: Boomtowns Have to Attract People from Somewhere

The following table (Figure 4) lists the metros at the other end of the spectrum, the slowest-growing of the largest 100 metros over the past five years in terms of total number of jobs.

<sup>2</sup> Most states in the South, including Texas, Georgia and Alabama, also run significant and successful efforts to get businesses to relocate there. <sup>3</sup> Moretti, Enrico, The New Geography of Jobs. Houghton Mifflin Harcourt: 2012.



### Figure 4: Slowest-Growing Job Markets Over the Past Five Years

RANK	METRO	5-YEAR % CHANGE IN Employment	INCREASE IN TOTAL Employment in Past 5 Years (Thous.)	HYPOTHETICAL MEDIAN DTI
86	Providence, RI	5%	34	33%
87	Cleveland, OH	5%	48	21%
88	Greensboro, NC	4%	15	22%
89	Urban Honolulu, HI	4%	20	61%
90	Tulsa, OK	4%	19	20%
91	New Orleans, LA	4%	22	26%
92	Akron, OH	4%	12	19%
93	Silver Spring, MD	4%	21	32%
94	Rochester, NY	3%	18	19%
95	Pittsburgh, PA	3%	38	19%
96	Buffalo, NY	3%	17	20%
97	Gary, IN	3%	8	19%
98	Hartford, CT	3%	17	24%
99	New Haven, CT	2%	8	26%
100	Bridgeport, CT	2%	7	34%

Many of the weaker metros remain hard-hit by the decline in manufacturing employment or loss of a large employer and just haven't had time to recover yet. Most are in colder climates. Connecticut and New York are also somewhat hampered by higher taxes and changes in the financial services sector.

It is important to know that faster growth could return to these communities with the right mix of policies, or with the good fortune of having a particular cluster of firms or sectors that expand quickly. In particular Silver Spring, Maryland, is likely to start growing more quickly since it is next to the Washington, DC, metro.

#### Implications

- 1. Booms can last a long time, so don't be surprised by more growth in booming cities.
- 2. Booming areas may have the potential to be somewhat insulated from a national recession if their growth is driven by longer-term factors, such as firms relocating to business-friendly areas. However, how they fare in a downturn depends on the types of jobs involved and whether or not employment is concentrated in harderhit sectors. For example, Las Vegas in 2008 got hit hard because part of the boom in employment was building

Sources: BLS/Arch MI

houses for speculators who wanted to quickly flip them.

- 3. Home prices are at greater risk in areas of weak growth. A falling population is the worst-case scenario for home prices, since people can't take the home with them when they leave and there are fewer people interested in buying.
- 4. While the colorful boomtowns of yore may be longgone, there are modern ones that show American cities can still be quite dynamic, with a little luck and the right mix of factors.

### **Higher Risk of Future Home Price Declines**

The average probability of home prices being lower in two years increased from 9% to 11% over the quarter. That is the average home price risk of America's largest 401 metros, according to the Arch MI Risk Index<sup>®</sup>, a statistical model based on nine indicators of the health of local housing markets such as over/undervaluation, unemployment rates and home price momentum. Housing market conditions are somewhat weaker than expected, given the strong job market and low interest rates, due to affordability issues, particularly out West, and the heightened concern of potential buyers about the future path of incomes and home prices.

At 11%, the overall national risk of decline (of any size) in home prices is well below the average from 1980 to today of 20% (and is lower than the pre-crisis average of 13% from 1980-2004). Please note that the Arch MI Risk Index doesn't estimate the magnitude of any declines, just the probability of home prices being lower in two years.



### Latest Arch MI Risk Index – Probability of Price Declines

The Arch MI Risk Index estimates the probability home prices will be lower in two years, times 100. It is a statistical model based on factors such as regional unemployment rates, home builder sentiment, net migration, housing starts, the percentage of delinquent mortgages, the difference between actual and estimated fundamental home prices (based on economic factors such as income), population growth, etc. Model results are sometimes adjusted for unmodeled factors.

### Areas Most at Risk of a Price Correction

Every state is expected to have positive home price growth over the next two years based on current conditions, according to the Arch MI Risk Index. That would be a continuation of recent trends.

The following chart shows the 10 states with the highest probabilities of having lower home prices in two years, compared to today's level. The list of states most at risk is led once again by North Dakota, at 24%, a roughly one-in-four chance of experiencing a price decline (of any size, even a modest decline).

### Areas Most at Risk of a Price Correction and Change from Prior Quarter



-3 2 0 -3 -4 6

(continued on page 10)

### Areas Most at Risk of a Price Correction (continued from page 9)

- Four states make the top 10 list due to the lingering effects of lower energy prices since the boom ended in 2015: Alaska, West Virginia, North Dakota and Wyoming. Fortunately, conditions in these states are improving, with house price risk now lower than last quarter.
- California, Colorado, Idaho, Oregon and Washington are on the most risky list because their home prices are unusually high compared to historic norms of affordability (see page 24 for maps on affordability). Our estimate of house price risk increased in all of these Western states because our latest model of over/undervaluation indicates that their home prices are now more highly overvalued. High home prices relative to underlying economic fundaments can be the main downside of rapid economic growth discussed in our lead article.
- Connecticut is one of the last states to fully recover from the 2008–09 recession, which led to other problems, such as a persistent state budget deficit. The state's under-65 population has contracted each year since 2011. Being a high-cost, high-tax state, it is disproportionately affected by new federal limitations on state and local tax deductions, which incent wealthier residents to move to lower-tax states.

- Alaska improved somewhat, but the beleaguered economy remains one of the nation's weakest. It was the only state to report a decline in non-farm employment in 2018 and payrolls in the energy sector have fallen by a quarter since 2014, as oil production continues to fall.
- West Virginia's job growth has picked up, in part due to construction of natural gas pipelines and massive public expenditures on the state's roads. However, the unemployment rate is the third-highest in the nation, home sales have fallen by more than 12% from a year ago and home price appreciation has slowed by almost 3 percentage points over the past six months. While population declines have slowed, 2018 was the sixth consecutive year of losses and there are now fewer residents than in 1936.

Among the 100 largest metros, Miami and Lakeland in Florida have the highest Risk Index values. All of the 10 riskiest cities have home prices far higher than expected compared to the historical relationship of home prices to fundamentals, such as incomes.

The greater Lakeland metro area (inland from Tampa) is estimated to have a 45% chance of a price decline over the next two years. House price appreciation has slowed significantly in the past six months and could decelerate further as new supply comes online and if job growth in the mainstay logistics industry slows due to tariffs. Rapid house price appreciation over the past two years has taken a significant toll on affordability. As in many areas, home sales are trending lower, while housing starts and listings of existing homes are climbing.

Miami continues to have a glut of unsold condos and home prices look overvalued (Moody's Analytics estimates Miami's home prices are more than 20% overvalued).

Changes this quarter were larger than normal because our predictive analytics team enhanced the way we analyze the reasonableness of home prices compared to many economic factors, such as incomes, interest rates and population growth rates.

#### Areas Most at Risk of a Price Correction



Change in Qti

To find out about your local market, such as your metro's specific Arch MI Risk Index value, please visit archmi.com/hammr and explore the variety of visualizations under the View our HPI Charts and Maps link.

### What Neuroscience Has to Say about Picking the Right Home

Pondering a move? First consider what research on the secret emotional life of the brain has to say about it.

Most of us have complex emotional bonds with our home, aspects of which probably run deeper than we are aware of. Here are some house-hunting tips gleaned from neuroscience research to help you align your purchase with your subconscious needs:

- An ideal place "feels" safe. Evidence suggests our home is connected to a deeply wired sense of safety as well as a place for essentials like food, warmth and a place to sleep. For example, a study found that people don't sleep as soundly the first night in a new place, probably because at a subconscious level we are more vigilant for possible dangers in unfamiliar surroundings. This suggests that if a prospective home or neighborhood "feels right," it is a positive sign worth taking seriously.
- 2. Don't buy too small a home. Some homes are too small in a psychological sense. At a subconscious level we need a specific amount of space to be comfortable. Even extroverts living together get fatigued by constant contact — we all need some space where we can be alone. Perhaps "man caves" are not such an extravagance after all!
- Don't move children too often. Studies find that young children who moved frequently have reduced psychological well-being and life satisfaction as adults.<sup>1</sup>
- 4. Moving nearby is easier. Our sense of belonging extends to the surrounding areas we are familiar with (our brain has cells dedicated to knowing if we are home, at a boundary or in our "home range"). Thus, moving within a familiar area helps you settle in quicker.
- 5. Big cities offer novelty, but go with what feels right. Animal studies suggest an environment rich in things to explore is good for the brain. We also crave novelty, which is why so many people find the big city exciting. Nevertheless, if you feel more at home in a quieter place, buying something that fits that preference is a safer bet for your long-term peace of mind.

**6. Nature matters**. We are hardwired to find nature soothing, so a view of trees or a field is better for our well-being than a view of a neighboring building. For instance, studies have found that hospital patients with views of nature recover faster than patients with views of buildings. Being in nature is restorative for our brains, in part because it provides a break from the focused attention required by work or family duties. So having a view or being near a park or nature walk is a plus.

According to recent first-time homeowners Courtney Epstein and her husband Andrew, both aged 33, one psychological benefit of owning is a greater sense of stability. And while there is still some anxiety about having a long-term mortgage commitment, she says, "It is really nice not to have to renew a lease or move, like many of my friends are dealing with right now." They are both "pretty happy" about owning because of that "greater sense of stability," which has allowed them to buy better-quality furniture and stereo speakers without having to worry about movers damaging them.

Referring to our list above, the home they settled on was a good choice because it felt more spacious to them than their other options and it has a view that includes some nature.

In short, the more your purchase decision aligns with your psychological needs, the better. Our homes satisfy a deep-seated innate need for safety, allowing our brains to stop being on alert for danger. At the very least, our home makes it easier for us to be happy by enabling us to pursue things we enjoy.

<sup>1</sup> For more information, read Chapter 2 of Dean Burnett's Happy Brain: Where Happiness Comes From, and Why. W.W. Norton & Company, 2012.

### Are You Living in the Right Place? - By Manhong Feng

Where you live matters. And it is not only about the weather, amenities, commute and the place you call home. It is also about your neighbors and whether the area's economy is strong enough to be drawing in new workers. One way of assessing this is by looking at demographics over time and place, specifically for people in the key first-time homebuyer demographic.

This article aims to help you better understand how concentrated the 25–44 age group is in different metros, which areas are attracting/losing them and whether large migration flows always result in the rapid deterioration of affordability (the answer may surprise you). We then look at affordability in areas attracting this age cohort, which, for simplicity, we refer to as young adults.

#### America's "Youngest" Cities

Before we look at cities with the largest inflows of young adults, we look at the relative size of this cohort over time and by city size.

As of 2017, 26.5% of the U.S. population was 25–44 years old, nearly a full percentage point lower than 10 years ago, and more than 2% lower than the average since 1900. You can see from the chart below how the relative size of this cohort has swung around dramatically as the Baby Boomers aged. We can also see that the largest metros have a higher percentage of young adults.

### Figure 1: The Share of Total Population Aged 25–44 Years



ces: U.S. Census Bureau, Moody's Analytics, Arch MI (continued on page 14)

### Are You Living in the Right Place? (continued from page 13)

There are relatively more young people in the largest 100 MSAs (Metropolitan Statistical Areas) than in the U.S. overall. Likewise, the share of young people in the largest 50 MSAs is greater still and the share in the largest 20 MSAs is greater still. This trend is a fairly new development. This probably reflects a general preference for larger MSAs among young adults and/or better employment opportunities.

Demographics vary greatly by region. As of 2017, for the largest 100 MSAs, the MSA with the highest share of young people was San Francisco, California, which has 34.5% of its population between the ages of 25 and 44. In contrast, only 18.7% of the population in North Port, Florida, is in the age 25–44 bracket.

### Which Cities Are Growing "Younger"?

In spite of the general trend that larger is younger, it does not follow that the largest city attracts the most young people. Of New York City's population, 29.3% is 25-44 years old, the 14th youngest MSA in the U.S. but in terms of growth in this demographic, it only ranked 62 of the top 100 MSAs.

The chart below shows the 2017 young adult share vs. the five-year change in this segment to total population ratio. The size of the bubble represents the size of population of the MSA.

### Figure 2: Change in Share of Total Population 25-44 Years Old



Sources: U.S. Census Bureau, Moody's Analytics, Arch MI

With a five-year change in the young adult to total population ratio of 5.4%, the city of Austin, Texas, leads growth in terms of a young population.

One can observe that larger MSAs tend to have a higher share of population aged 25-44, yet they are more likely to be on the low side in terms of the five-year change in the young adult population to total population ratio. Chicago, Illinois, stands out. Being the third-largest MSA in the U.S., Chicago has 28.5% of its population aged 25-44 and the five-year net increase in 25–44 year olds to the total population was a disappointing -0.4%. Among the top 100 MSAs, only Lake County, Illinois, and Bridgeport and New Haven in Connecticut fared worse at attracting young adults.



### Are "Growing Younger" MSAs Right for Young People?

Now that we've learned where young adults are more common and where they tend to relocate, it naturally follows to ask "Are they living in the right place?" whether homes in those "young" MSAs are affordable and whether it get easier or more difficult to afford housing in those MSAs.

We employ our hypothetical median debt-to-income (DTI) ratio<sup>1</sup> to measure affordability. By the end of the first guarter of 2019, for the 20 MSAs with the fastestgrowing young adult population among the 100 largest MSAs, San Francisco had the worst affordability, with the highest hypothetical median DTI of 84%, followed by Oakland, California, at 52%.

<sup>1</sup> An estimate of what percentage of the median income is needed to make mortgage payments on a median-priced home. For more details, see page 21.

Nashville, Tennessee, and Lakeland, Florida, are the most affordable, with hypothetical median DTI ratios at 26% and 27%, respectively. During the past five years, Boise, Idaho, had experienced the largest decline in affordability, with our hypothetical median DTI measure increasing 9.9 percentage points to 32%. Denver, Colorado, ranked second for worsening affordability, with the hypothetical median DTI increasing 6.3 percentage points in the past five years. Based on our affordability measure, the MSAs in Texas, including Austin, San Antonio and Houston, all currently have decent affordability relative to the East and West coasts.

(continued on page 16)

### Are You Living In The Right Place? (continued from page 15)

Figure 3: Affordability and Changes in Affordability for Metros "Growing Younger"

MSA	CURRENT SHARE AGE 25–44	5-YEAR CHANGE IN Share Age 25–44	CURRENT DTI	5-YEAR PERCENTAGE POINT CHANGE IN DTI
Austin, TX	32.9%	5.4%	31%	1.9%
Orlando, FL	28.8%	4.5%	32%	4.9%
Seattle, WA	31.7%	3.9%	41%	4.4%
San Antonio, TX	28.3%	3.7%	30%	3.7%
Charleston, SC	28.9%	3.7%	29%	-1.3%
Denver, CO	31.2%	3.7%	37%	6.3%
Lakeland, FL	24.6%	3.5%	27%	5.6%
Colorado Springs, CO	28.1%	3.3%	30%	5.6%
Tacoma, WA	28.6%	3.3%	34%	5.2%
Ogden, UT	28.5%	3.2%	28%	5.2%
Nashville, TN	28.9%	3.2%	26%	3.4%
Houston, TX	29.3%	3.2%	27%	1.4%
Jacksonville, FL	27.2%	2.8%	27%	2.6%
Oakland, CA	29.4%	2.8%	52%	2.7%
Boise City, ID	27.2%	2.8%	32%	9.9%
Cape Coral, FL	21.2%	2.7%	31%	4.4%
San Francisco, CA	34.5%	2.6%	84%	1.0%
Salt Lake City, UT	31.0%	2.6%	30%	4.4%
Portland, OR	30.0%	2.6%	35%	1.8%
Tampa, FL	25.5%	2.6%	30%	5.8%
U.S.	26.5%	1.1%	<b>29</b> %	1.2%

Sources: U.S. Census Bureau, Moody's Analytics, Arch MI

When considering a move, both job opportunities and affordability are important factors. Unfortunately, booming economies naturally go hand-in-hand with worsening affordability. At some point, when home price growth outpaces income growth by too much, fewer young people will be able to afford to move there.

But one real surprise from Figure 3 is that a large increase in the first-time homebuyer age bracket doesn't automatically result in a massive worsening of affordability. Some MSAs have successfully attracted young adults and yet have reasonable affordability, although it has deteriorated faster than for the nation as whole. Among the 20 top destinations/ large MSAs for young adults, Charleston, South Carolina, Nashville, Tennessee, Jacksonville, Florida, and Salt Lake City, Utah, along with many metros in Texas, still have reasonable affordability levels and have so far avoided the extreme worsening in affordability of many metros in the West and in Florida.



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![](_page_8_Picture_16.jpeg)

### **Arch MI State-Level Risk Index**

STATE	ARC	ARCH MI RISK INDEX			ANNUAL HOME PRICE % CHANGE (FHFA HPI)		UNEMPLOYMENT RATE			GROSS STATE	PRODUCT	SINGLE-FAMILY HOUSING STARTS		POPULATI	
(Sorted by Risk Ranking, then alphabetically)	RISK RANKING	LATEST	1-YEAR Change	LATEST	1 YEAR Earlier	LATEST	1-YEAR Change	LONG RUN AVG.		PER CAPITA 2019Q1	1-YEAR % Change	PER 1,000 PEOPLE 2019Q1	1-YEAR % Change	2019Q1 (THS.)	1-Y Ci
Alaska	Low	21	-6	2.3	2.0	6.5	-0.2	7.9	I	\$ 75,076	5	1.6	-5.0	740	
California	Low	18	16	5.2	8.4	4.3	0.0	7.2		\$ 76,239	4	1.5	-6.1	39,686	
Colorado	Low	22	14	7.0	10.2	3.4	0.4	5.3		\$ 65,410	4	4.8	-2.5	5,751	
Connecticut	Low	19	4	2.3	2.1	3.8	-0.5	5.5		\$ 78,881	5	0.9	16.8	3,572	
Hawaii	Low	11	9	3.0	5.8	2.8	0.5	4.8		\$ 65,527	4	1.8	-5.0	1,420	
Idaho	Low	23	16	12.2	12.2	2.8	-0.1	5.9		\$ 44,148	3	7.1	-1.8	1,778	
Mississippi	Low	12	3	2.7	3.4	4.9	0.1	7.5		\$ 38,725	4	2.1	-2.7	2,985	
Nevada	Low	10	5	11.5	13.2	4.0	-0.6	6.5		\$ 56,566	4	4.1	-13.0	3,080	
New Jersey	Low	11	1	3.1	4.9	3.9	-0.4	6.3		\$ 72,227	4	1.4	7.3	8,912	
North Dakota	Low	24	4	1.3	0.9	2.3	-0.3	3.8		\$ 74,829	5	2.8	-8.8	764	
Oklahoma	Low	11	-2	4.5	3.0	3.3	-0.3	5.1		\$ 52,520	6	2.3	-3.3	3,955	
Oregon	Low	23	20	6.0	7.9	4.3	0.2	7.1		\$ 58,494	4	2.5	-7.8	4,215	
Texas	Low	12	-4	5.7	7.9	3.7	-0.3	6.0		\$ 62,053	4	4.3	2.9	29,003	
Washington	Low	21	19	7.1	11.8	4.7	0.2	7.0		\$ 76,636	5	3.1	-9.7	7,603	
West Virginia	Low	22	0	2.6	3.9	4.9	-0.5	8.1		\$ 44,401	5	1.4	5.4	1,800	
Wyoming	Low	19	0	0.2	4.8	3.6	-0.4	4.9		\$ 72,193	5	2.5	-9.1	579	
Alabama	Minimal	<5	2	6.0	3.9	3.8	-0.3	7.1		\$ 46,268	4	2.7	7.3	4,901	
Arizona	Minimal	6	1	7.6	9.2	4.9	0.1	6.3		\$ 49,155	4	4.5	4.2	7,273	
Arkansas	Minimal	<5	2	3.4	3.9	3.6	-0.1	6.4		\$ 43,219	4	2.4	-2.9	3,020	
Delaware	Minimal	<5	0	2.9	4.3	3.2	-0.7	5.4		\$ 78,785	3	5.7	1.3	973	
District of Columbia	Minimal	5	3	6.8	7.6	5.6	-0.1	7.6		\$ 204,822	4	0.2	-55.2	705	
Florida	Minimal	9	1	7.0	9.1	3.4	-0.3	6.2		\$ 49,438	4	4.6	10.1	21,540	
Georgia	Minimal	<5	2	7.0	9.0	3.8	-0.3	6.0		\$ 57,564	5	4.0	-0.4	10,613	
Illinois	Minimal	<5	2	2.6	4.0	4.4	0.1	6.9		\$ 68,996	4	0.8	-5.4	12,728	
Indiana	Minimal	<5	2	7.1	6.5	3.6	0.2	6.1		\$ 56,158	4	2.6	-0.2	6,706	
lowa	Minimal	<5	2	3.7	4.0	2.4	-0.2	4.6		\$ 61,054	4	2.4	-9.7	3,163	
Kansas	Minimal	<5	2	4.8	6.6	3.5	0.1	4.6		\$ 57,257	4	1.9	-10.5	2,915	
Kentucky	Minimal	<5	2	3.5	6.0	4.0	-0.4	6.7		\$ 47,809	4	1.7	-4.0	4,479	
Louisiana	Minimal	10	4	2.5	4.4	4.5	-0.4	7.2		\$ 54,117	3	3.2	9.7	4,660	
Maine	Minimal	<5	2	5.7	5.2	3.3	0.0	5.8		\$ 49,260	4	3.1	2.3	1,338	
Maryland	Minimal	9	4	2.7	4.8	3.8	-0.3	5.3		\$ 70,316	4	2.1	0.5	6,058	
Massachusetts	Minimal	<5	2	4.9	6.8	2.9	-0.6	5.5		\$ 84,941	5	1.1	-10.6	6,923	
Michigan	Minimal	8	6	6.9	7.1	4.1	-0.2	7.9		\$ 54,367	4	1.6	-12.6	10,004	
Minnesota	Minimal	<5	2	5.4	6.9	3.3	0.3	4.8		\$ 65,884	4	2.3	-7.6	5,635	
Missouri	Minimal	<5	2	4.7	6.5	3.3	0.0	5.9		\$ 53,131	5	1.8	-13.5	6,138	
Montana	Minimal	<5	2	4.1	6.0	3.6	-0.1	5.7		\$ 47,432	4	3.0	-4.6	1,068	
Nebraska	Minimal	<5	2	4.8	6.8	2.9	0.1	3.5		\$ 65,060	3	2.5	-15.3	1,937	
New Hampshire	Minimal	<5	2	4.8	6.9	2.4	-0.2	4.3		\$ 64,866	5	2.3	-1.0	1,360	
New Mexico	Minimal	<5	-7	4.9	3.2	5.0	0.1	6.7		\$ 48,507	5	2.1	-7.3	2,100	
New York	Minimal	9	5	4.9	6.4	3.9	-0.4	6.5		\$ 88,546	5	0.6	-3.1	19,519	
North Carolina	Minimal	<5	3	7.2	7.1	4.0	0.0	5.8		\$ 55,808	4	4.8	-2.8	10,488	
Ohio	Minimal	<5	2	5.6	6.4	4.3	-0.3	6.7		\$ 58,939	4	1.4	-6.8	11,692	
Pennsylvania	Minimal	<5	2	4.4	5.2	3.8	-0.5	6.4		\$ 63,550	5	1.6	10.8	12,793	
Rhode Island	Minimal	<5	2	5.1	8.2	3.7	-0.4	6.5		\$ 59,540	4	1.0	-6.0	1,058	
South Carolina	Minimal	<5	2	5.6	7.6	3.4	-0.1	6.5		\$ 46,500	4	5.9	1.5	5,129	
South Dakota	Minimal	<5	2	6.5	5.4	2.8	-0.3	3.7		\$ 60,029	4	3.3	-18.8	886	
Tennessee	Minimal	<5	1	7.3	8.1	3.2	-0.4	6.4		\$ 55,259	4	4.0	-1.6	6,811	
Utah	Minimal	5	3	9.8	10.3	2.9	-0.2	4.8		\$ 56,651	3	5.6	-7.7	3,201	
Vermont	Minimal	<5	-2	3.1	3.5	2.2	-0.5	4.6		\$ 54,647	4	1.9	7.1	627	
Virginia	Minimal	<5	2	3.6	5.0	2.9	-0.2	4.7		\$ 64,135	4	2.4	-12.6	8,560	
Wisconsin	Minimal	<5	2	5.9	5.9	2.8	-0.2	5.5		\$ 59,226	4	1.9	-9.4	5,824	
Population Weighted Total	Minimal	9	4	5.5	7.2	3.6	-0.3	5.8		64,042	4	2.6	-0.9	328,670	

### DN

#### YEAR % HANGE 0.3 0.4 1.4 0.0 0.0 1.8 -0.1 2.1 0.1 0.7 0.4 0.9 1.4 1.2 -0.4 0.4 0.4 1.9 0.3 0.9 0.6 1.5 1.2 -0.2 0.3 0.3 0.1 0.3 0.0 0.0 0.3 0.4 0.1 0.6 0.3 0.7 0.6 0.4 0.3 -0.2 1.3 0.1 -0.1 0.1 1.2 0.7 0.8 1.7 0.2 0.6 0.3

### **Explanatory Notes**

**The Arch MI Risk Index**, both at the state and MSA level, estimates the probability of home prices being lower in two years, times 100. For example, a score of 20 means the model estimates a 20% chance the Federal Housing Finance Agency (FHFA) All-Transactions Regional HPI will be lower two years from the date of the input data release. The **Risk Ranking** column is a mapping of the Risk Index values into buckets, while the next column shows the actual Risk Index values. Risk Ranking is "Minimal" if the Risk Index is lower than 10; "Low" if the Risk Index is between 10 and 25; "Moderate" if the Risk Index is between 50 and 75; and "High" if the Risk Index is higher than 75.

Historical Risk Index scores change as revisions to source data become available. The largest changes are typically from HPI revisions.

Home Price Changes: The first column is the most recent year-over-year percentage change in the FHFA All-Transactions Home Price Index (HPI). The next column is the annual HPI change from a year earlier. Recent price appreciation is an indicator of strength in the local housing market and is generally correlated with near-term future price changes.

**Unemployment Rates** are seasonally adjusted statewide or MSA-wide unemployment rates released by the U.S. Bureau of Labor Statistics.

**Gross State Product/Gross Metro Product** is from Moody's Analytics estimation, which is based on gross product data released by the U.S. Bureau of Economic Analysis.

**S.F. Housing Starts are** the 12-month moving average of Single-Family Housing Starts data released by the U.S. Census Bureau.

**Population** is from Moody's Analytics estimation, which is based on population data released by the U.S. Census Bureau.

#### YEAR-OVER-YEAR PERCENTAGE CHANGE IN HOME PRICES

![](_page_10_Figure_3.jpeg)

Home price growth decelerates closer to a more sustainable rate. Annual home price growth continued to decelerate in Q1. The year-over-year growth rate was between 4 and 5.5% in the major home price indices. Currently, the various measures of price growth are telling a consistent story that the market is cooling, even though they differ in methodologies and data sources (the FHFA only uses GSE loans, while the Case-Shiller index uses a broader selection of loans).

**Sources:** CoreLogic/Case-Shiller/FHFA/Moody's Analytics/Arch MI

# **Housing and Mortgage Market Indicators**

![](_page_10_Figure_7.jpeg)

![](_page_10_Figure_8.jpeg)

FHFA House Price Index – Purchase–only; (Index 1991Q1=100; SA)

- FHFA House Price Index New and existing buildings All transactions; (Index 1980Q1=100; SA)
- S&P/Case-Shiller U.S. National Home Price Index (Index Jan2000=100; SA)

### YEAR-OVER-YEAR PERCENTAGE CHANGE IN HOME PRICES

![](_page_10_Figure_13.jpeg)

Home prices are up in all 50 states over the past year. The fastest growth in home prices was in Idaho, Nevada and Utah. The slowest growth was in Wyoming, North Dakota, Alaska and Connecticut. Metro-level data and quarter-over-quarter changes are available at archmi.com/hammr under the View HPI Charts and Maps link.

Sources: FHFA All-Transactions HPI/Moody's Analytics/Arch MI

**SA** stands for Seasonally Adjusted.

![](_page_10_Figure_17.jpeg)

#### PERCENTAGE OF MEDIAN INCOME NEEDED FOR PAYMENTS ON A MEDIAN-PRICED HOME

Housing affordability has mostly worsened over the past seven years, yet remains better than historic norms nationally. The Y-axis is Arch MI's hypothetical median debt-to-income (DTI) ratio, which is the percentage of the median household's income needed to cover mortgage payments on a medianpriced home. For the U.S. it is 29%, 5% lower than during 1987–2004. Los Angeles is at 57%, a concern because it has increased rapidly in recent years, but at least it is well below its peak. See page 24 for state-level data.

Our mortgage payment calculations are based on pretax median household income, and assume a 10% down payment, escrow of annual expenses of roughly 1.75% of the initial home price (insurance, dues and property taxes, which we vary by state) and the prevailing 30year fixed mortgage rate plus 0.75% to cover mortgage insurance and risk add-ons. It is "hypothetical" because it is not based on actual loan DTIs. It doesn't include nonmortgage debt payments (auto, student, etc.), so it is an estimate of a front-end DTI.

Sources: U.S. Census Bureau/Freddie Mac/National Association of REALTORS® (NAR)

#### ORIGINATIONS IN MILLIONS OF \$

Future mortgage originations likely to tilt towards purchase loans. The dollar volume of purchase mortgage originations is likely to continue its upward trend since the start of the housing recovery. For refis, the only thing that can be said with certainty about future mortgage rates is that they will fluctuate with general market expectations of global growth prospects and future central bank policy. If rates increase, very few existing borrowers would have an incentive to refi, unless they want to get a cash-out refi.

Sources: Mortgage Bankers Association(MBA)

#### HOME PRICE PERCENTAGE CHANGE FROM PRIOR PEAK (2005-2008)

![](_page_11_Figure_3.jpeg)

peak in 10 states. House prices have increased rapidly since bottoming out in 2012 and have surpassed their prior peak levels nationally; however growth has been uneven. The largest cumulative growth since home prices peaked during 2005–08 (we use the peak for each state, which varied by time) was in Colorado, followed by Texas and the District of Columbia. As the end of the first quarter of 2019, 10 states had house prices lower than their prior peaks, with Connecticut and Maryland still lower by 14% and 9%, respectively. Values shown are in nominal (not inflation-adjusted) terms. If we were to adjust for the 27% cumulative inflation in consumer prices since 2006, then home prices are still below their pre-crisis peak in most areas.

Home prices are still below the prior

Sources: FHFA/Moody's Analytics/Arch MI

![](_page_11_Figure_6.jpeg)

ANNUAL PERCENTAGE CHANGE IN PER-CAPITA INCOME

Income growth has picked up, but is uneven. Income growth is an important driver of housing demand. The yearover-year change in per-capita income was strongest in New York, followed by Washington and West Virginia. It was weakest in Nebraska and South Dakota.

**Sources:** U.S. Bureau of Economic Analysis/ U.S. Census Bureau/Moody's Analytics/Arch MI

# **Housing and Mortgage Market Indicators**

#### ANNUAL PERCENTAGE GROWTH IN TOTAL EMPLOYMENT

![](_page_11_Figure_12.jpeg)

#### UNEMPLOYMENT RATES BY STATE

![](_page_11_Figure_14.jpeg)

Job growth remains impressive across the nation. On a year-over-year base, total employment grew in April in all states. The number of jobs in Nevada had the fastest growth, followed by Utah and Arizona. For the U.S., the annual growth rate was 1.7%. However, in general, rural areas continue to lag urban areas.

Sources: BLS

The unemployment rate is exceptionally low. The Great Plains region and New England have some of the tightest labor markets in the nation. Alaska lags the nation at the moment due to a slower energy-sector recovery than in other areas.

Sources: BLS

#### PERCENTAGE OF MEDIAN INCOME NEEDED FOR PAYMENTS ON A MEDIAN-PRICED HOME

![](_page_12_Picture_3.jpeg)

Affordability poor in the West, great in the heartland. The percentage of median income needed for monthly mortgage payments on a median-priced home varies widely. Hawaii required the highest percentage of median income, followed by California. This hypothetical DTI ratio is the lowest in Iowa and Oklahoma. Please see page 21 for calculation details.

Our mortgage payment calculations are based on pretax median household income, and assume a 10% down payment, escrow of annual expenses of roughly 1.75% of the initial home price (for insurance, dues and property taxes, which we vary by state) and the prevailing 30-year fixed mortgage rate plus 0.75% to cover mortgage insurance and risk add-ons. It is "hypothetical" because it is not based on actual loan DTIs. It doesn't include nonmortgage debt payments (auto, student, etc.), so it is an estimate of a front-end DTI.

Sources: U.S. Census Bureau/Freddie Mac/NAR/ Moody's Analytics/Arch MI

#### DIFFERENCE IN PERCENTAGE OF MEDIAN INCOME NEEDED NOW VS. NORMAL YEARS

![](_page_12_Figure_8.jpeg)

#### Affordability is far worse now than historic norms in the West and in Florida.

This chart shows the percentage of median income needed for monthly mortgage payments on a median-priced home minus the average from the more normal years of 1987-2004. Oregon is now the worst for affordibility compared to its 1987–2004 average values, followed by Vermont and Hawaii. Affordability is better now than during 1987–2004 in 36 states, led by Connecticut, New Jersey and Illinois.

Sources: U.S. Census Bureau/Freddie Mac/NAR/ Moody's Analytics/Arch MI

### **Housing and Mortgage Market Indicators**

![](_page_12_Figure_13.jpeg)

**Purchase mortgage applications** remain solid. The MBA purchase mortgage applications index by week of the year is stronger than last year's.

In general, purchase mortgage applications trend upwards into the spring buying season and then trend downwards. Purchase mortgage applications in mid-June are 112% higher than at the start of 2019.

Sources: MBA/Arch MI

The U.S. rental vacancy rate bounced back slightly from the lowest level in more than three decades, to 7.0% in the first quarter. Sustained low rental vacancy rates indicate a tight housing market.

Sources: U.S. Census Bureau/Moody's Analytics/Arch MI

![](_page_13_Figure_2.jpeg)

ANNUAL HOUSING STARTS, IN THOUSANDS

Housing starts weakened as mortgage rates increased late year. Single-family housing starts dropped 4% nationally from a year ago to 854,000 units (seasonally adjusted annual rate) in April. Multi-family starts are 2% lower than a year ago, at 358,000 units a year (after smoothing out highly volatile monthly data by taking a 12-month moving average).

#### ANNUAL PERCENTAGE CHANGE IN HOUSING STARTS

![](_page_13_Figure_7.jpeg)

Housing starts weakened in most states. The growth in single-family housing starts (through April) is weakest in the District of Columbia, Virginia and South Dakota. Housing starts increased the most in Connecticut, followed by Vermont and Florida. To get a clearer understanding of the trend, unlike numbers you will see elsewhere, we smooth the data to dampen shortterm volatility due to weather, survey limitations, etc. by showing the changes in the 12-month moving average.

Sources: U.S. Census Bureau/Moody's Analytics/Arch MI

### **Housing and Mortgage Market Indicators**

![](_page_13_Figure_11.jpeg)

![](_page_13_Figure_12.jpeg)

![](_page_13_Figure_13.jpeg)

![](_page_13_Figure_14.jpeg)

#### NEW AND EXISTING HOME SALES IN THOUSANDS

Both new and existing home sales are down slightly from a year ago. Sales of existing single-family homes were 4.75 million units (after annualizing the monthly number) in May; a decrease of 1% compared to the same period last year. Sales of newly constructed homes were 626,000 units (annualized rate), down 4% from a year ago.

Sources: NAR/U.S. Census Bureau/Moody's Analytics/Arch MI

### MONTHS SUPPLY OF HOMES FOR SALE

New home inventory remains high, while existing homes for sale remain limited. The months supply of existing single-family homes for sale (total current listings ÷ last month's sales) was 4.0 months in May, compared to 3.9 months a year ago. The months supply of new homes for sale, shown in orange, ticked up to 6.4 months in May, above its long-term average of 6.1 months.

Sources: NAR/Moody's Analytics/Arch MI

Sources: U.S. Census Bureau/Moody's Analytics/Arch MI

# Arch MI Risk Index for the 100 Largest MSAs

<b>100</b> LARGEST METROPOLITAN			AF	RCH MI RISK IND	EX	% HOME PF	100	
Statistical Areas Sorted by Risk Ranking, then State, then MSA	ST	RISK RANKING	2019Q1	1-YR. Change	LONG RUN AVG.	1-YR. 2019Q1	1-YR. 2018Q1	Statistical then State,
Anaheim-Santa Ana-Irvine, CA	CA	Moderate	30	27	26	4.1	6.7	Anaheim-
Riverside-San Bernardino-Ontario, CA	CA	Moderate	31	29	37	5.7	8.8	Riverside
Denver-Aurora-Lakewood, CO	CO	Moderate	35	23	20	7.0	10.5	Denver-Au
Fort Lauderdale-Pompano Beach-Deerfield Beach, FL	FL	Moderate	26	18	31	5.7	9.7	Fort Laud
Lakeland-Winter Haven, FL	FL	Moderate	45	37	23	9.7	9.5	Lakeland-
Miami-Miami Beach-Kendall, FL	FL	Moderate	40	33	36	7.4	8.2	Miami-Mi
Boise City, ID	ID	Moderate	32	22	23	15.6	15.7	Boise City
Phoenix-Mesa-Scottsdale, AZ	AZ	Low	23	17	22	7.8	9.4	Phoenix-N
Bakersfield, CA	CA	Low	18	16	24	4.5	5.1	Bakersfie
Fresno, CA	CA	Low	18	16	25	6.3	8.3	Fresno, C/
Los Angeles-Long Beach-Glendale, CA	CA	Low	24	22	29	5.8	8.5	Los Angel
Oakland-Hayward-Berkeley, CA	CA	Low	18	16	26	5.5	9.5	Oakland-H
Oxnard-Thousand Oaks-Ventura, CA	CA	Low	18	16	27	4.5	5.8	Oxnard-Th
SacramentoRosevilleArden-Arcade, CA	CA	Low	18	16	27	6.0	9.2	Sacramen
San Diego-Carlsbad, CA	CA	Low	19	17	28	4.4	8.1	San Diego
San Francisco-Redwood City-South San Francisco, CA	CA	Low	18	16	21	4.1	8.8	San Franc
San Jose-Sunnyvale-Santa Clara, CA	CA	Low	18	16	29	4.6	11.0	San Jose-
Stockton-Lodi, CA	CA	Low	18	16	26	6.8	9.4	Stockton-
Colorado Springs, CO	CO	Low	22	20	14	9.2	11.7	Colorado
Bridgeport-Stamford-Norwalk, CT	CT	Low	19	4	37	1.1	3.0	Bridgepor
Hartford-West Hartford-East Hartford, CT	CT	Low	19	4	15	3.3	0.7	Hartford-
New Haven-Milford, CT	CT	Low	19	4	25	2.3	2.1	New Have
North Port-Sarasota-Bradenton, FL	FL	Low	18	6	26	5.9	7.0	North Por
Tampa-St. Petersburg-Clearwater, FL	FL	Low	24	14	24	7.3	11.5	Tampa-St.
West Palm Beach-Boca Raton-Delray Beach, FL	FL	Low	17	4	26	6.3	8.5	West Paln
Urban Honolulu, HI	HI	Low	11	9	25	3.3	4.2	Urban Hoi
Frederick-Gaithersburg-Rockville, MD	MD	Low	11	6	32	2.2	5.0	Frederick
Detroit-Dearborn-Livonia, MI	MI	Low	12	10	42	6.9	7.5	Detroit-De
Camden, NJ	NJ	Low	11	1	26	3.5	3.9	Camden,
Newark, NJ-PA	NJ	Low	11	1	33	3.4	5.1	Newark, N
Oklahoma City, OK	OK	Low	11	-2	6	4.2	4.4	Oklahoma
Tulsa, OK	0K	Low	11	-2	8	5.5	3.5	Tulsa, OK
Portland-Vancouver-Hillsboro, OR-WA	OR	Low	20	17	31	4.5	7.5	Portland-
Austin-Round Rock, TX	TX	Low	24	9	13	7.3	6.9	Austin-Ro
Dallas-Plano-Irving, TX	ТХ	Low	15	3	9	5.1	9.6	Dallas-Pla
El Paso, TX	TX	Low	12	-4	19	4.3	3.3	El Paso, T
Fort Worth-Arlington-Grapevine, TX	ТХ	Low	16	4	8	6.4	10.8	Fort Wort
Houston-The Woodlands-Sugar Land, TX	ТХ	Low	12	-10	6	6.0	5.7	Houston-T
McAllen-Edinburg-Mission, TX	ТХ	Low	12	-4	9	0.5	5.3	McAllen-
San Antonio-New Braunfels, TX	ТХ	Low	12	-4	13	7.0	6.9	San Anton
Seattle-Bellevue-Everett, WA	WA	Low	21	19	23	4.9	13.8	Seattle-B
Tacoma-Lakewood, WA	WA	Low	21	19	26	9.2	13.1	Tacoma-L
Birmingham-Hoover, AL	AL	Minimal	<5	2	10	8.1	5.1	Birmingho
Little Rock-North Little Rock-Conway, AR	AR	Minimal	<5	2	6	1.8	3.7	Little Roc
Tucson, AZ	AZ	Minimal	6	4	23	8.2	8.3	Tucson, A
Washington-Arlington-Alexandria, DC-VA-MD-WV	DC	Minimal	5	3	20	4.0	5.7	Washingto
Wilmington, DE-MD-NJ	DE	Minimal	<5	0	30	2.8	4.2	Wilmingto
Cape Coral-Fort Myers, FL	FL	Minimal	9	-5	21	3.9	5.5	Cape Core
Jacksonville, FL	FL	Minimal	9	4	23	8.6	8.2	Jacksonvi
Orlando-Kissimmee-Sanford, FL	FL	Minimal	9	4	22	7.2	10.9	Orlando-K

<b>100</b> LARGEST METROPOLITAN	UNEM	PLOYMEN	RATE	GROSS METRO PRODUCT			SINGLE-FA Housing St	POPULATION		
Statistical Areas Sorted by Risk Ranking, then State, then MSA	LATEST	1-YR. Change	LONG RUN AVG.	PE	R CAPITA 2019Q1	1-YR. % Change	PER 1000 PEOPLE 2019Q1	1-YR. % Change	2019Q1 (THS.)	1-YR. % Change
Anaheim-Santa Ana-Irvine, CA	2.9	-0.2	4.9	\$	96,373	3.1	1.0	-47.6	3,207	0.8
Riverside-San Bernardino-Ontario, CA	4.2	-0.2	7.4	\$	45,243	4.2	2.2	-25.1	4,655	1.0
Denver-Aurora-Lakewood, CO	3.5	0.7	4.7	\$	72,792	5.1	3.4	-23.6	2,951	0.9
Fort Lauderdale-Pompano Beach-Deerfield Beach, FL	3.3	-0.4	5.5	\$	54,355	4.9	1.0	40.9	1,978	1.7
Lakeland-Winter Haven, FL	4.0	-0.5	6.6	\$	36,571	6.5	8.2	32.3	719	2.2
Miami-Miami Beach-Kendall, FL	3.6	-0.4	5.8	\$	55,033	4.9	1.0	21.5	2,800	1.6
Boise City, ID	2.7	-0.2	4.8	\$	49,713	6.7	10.3	-1.8	738	1.6
Phoenix-Mesa-Scottsdale, AZ	4.4	0.2	5.1	Ş	53,536	6.4	5.1	7.0	4,943	2.3
Bakersfield, CA	7.9	-0.4	10.9	Ş	54,608	4.0	2.4	-10.1	903	0.9
Fresno, CA	7.5	-0.2	11.8	Ş	57,649	4.6	1.7	-36.4	1,001	0.9
Los Angeles-Long Beach-Glendale, CA	4.7	0.0	7.3	Ş	79,358	3.7	0.5	-13.3	10,171	0.7
Oakland-Hayward-Berkeley, CA	3.1	-0.2	5.7	Ş	73,588	4.2	1.2	-31.0	2,836	0.8
Oxnard-Thousand Oaks-Ventura, CA	3.8	-0.2	6.3	\$	60,838	2.6	1.0	-25.7	857	0.7
SacramentoRosevilleArden-Arcade, CA	3.8	-0.2	6.4	Ş	68,229	6.0	2.7	-16.5	2,362	1.0
San Diego-Carlsbad, CA	3.3	-0.1	5.6	Ş	80,051	4.2	0.8	-44.8	3,366	0.9
San Francisco-Redwood City-South San Francisco, CA	2.2	-0.3	4.8	Ş	158,538	7.4	0.2	-30.3	1,664	0.8
San Jose-Sunnyvale-Santa Clara, CA	2.6	-0.3	5.6	Ş	134,834	6.8	1.2	-34.2	2,012	0.8
Stockton-Lodi, CA	6.1	-0.1	10.1	Ş	46,819	4.3	3.0	-26.5	758	1.0
Colorado Springs, CO	4.4	0.9	5.4	Ş	50,821	5.5	4.4	-33.6	744	1.0
Bridgeport-Stamford-Norwalk, CT	3.8	-0.5	5.0	Ş	83,744	3.8	0.8	-18.3	945	0.1
Hartford-West Hartford-East Hartford, CT	3.8	-0.6	5.4	Ş	89,338	3.8	0.9	27.0	1,207	0.1
New Haven-Milford, CT	4.1	-0.8	5.9	Ş	68,365	3.7	0.8	21.5	858	0.1
North Port-Sarasota-Bradenton, FL	3.4	-0.3	5.2	Ş	41,766	3.8	8.1	4.3	833	2.0
Tampa-St. Petersburg-Clearwater, FL	3.4	-0.4	5.4	Ş	53,349	5.0	5.0	20.6	3,188	1.9
West Palm Beach-Boca Raton-Delray Beach, FL	3.6	-0.4	6.2	Ş	53,226	5.6	2.2	10.8	1,507	1.7
Urban Honolulu, HI	2.5	0.3	4.1	Ş	70,951	3.1	1.0	5.3	982	0.1
Frederick-Gaithersburg-Rockville, MD	3.2	-0.3	3.6	Ş	80,785	3.5	1.9	9.8	1,316	0.8
Detroit-Dearborn-Livonia, MI	5.0	-0.1	8.0	Ş	52,936	3.7	0.5	-33.5	1,755	0.0
Camden, NJ	4.2	-0.4	5.8	Ş	59,607	3.4	1.1	0.6	1,247	0.3
Newark, NJ-PA	4.0	-0.5	5.6	Ş	80,136	5.9	1.2	-9./	2,511	0.5
Uklanoma City, UK	3.0	-0.5	4.1	Ş	56,632	6.5	4.1	8.7	1,400	0.5
TUISA, UK	3.3	-0.7	4.5	Ş	55,251	4.8	5.1	11.2	996	0.3
Portiana-Vancouver-Hillsboro, UR-WA	4.0	0.0	6.0	Ş	67,112	5.3	2.7	-10.2	2,500	1.1
AUSTIN-KOUND KOCK, IX	2.9	-0.1	4.3	Ş	68,620	6.8	1.7	9.7	2,192	1.6
Dallas-Plano-Irving, IX	5.5	-0.1	5.1	Ş	//,852	6.8	5.2	-5.1	5,061	1.5
	4.1	-0.3	1.1	Ş	44,790	4.0	5.1	6.1	854	1.1
Fort Worth-Arlington-Grapevine, 1X	3.6	0.0	5.0	Ş	58,042	6.7	4.0	4.3	2,560	1.5
Houston-The Woodlands-Sugar Land, TX	4.1	-0.6	5.5	Ş	70,483	6.9	5.7	1.8	7,071	1.4
McAllen-Edinburg-Mission, 1X	6.3	-0.6	10.9	Ş	51,466	5.4	5.4	2.1	875	1.3
San Antonio-New Braunteis, IX	5.5	-0.1	4.8	Ş	54,200	6.1 7.7	5.2	/.5	2,545	1.5
Seattle-Bellevue-Everett, WA	5.4	0.0	5.0	Ş	110,260	7.5	1.8	-26.2	5,077	1.5
lacoma-Lakewood, WA	5.3	-0.2	6.8	Ş	51,178	5.4	2.6	-52.6	900	1.5
Birmingnam-Hoover, AL	5.4	-0.2	5.2	Ş	55,/05	4.0	2.6	22.0	1,154	0.2
LITTIE KOCK-NORTH LITTIE KOCK-CONWAY, AK	5.4	-0.1	4./	Ş	50,257	5.6	2.5	-4.5	/44	0.5
	4.8	0.3	5.2	Ş	44,840	5.5	2.4	-26.8	1,057	2.1
wasnington-Arlington-Alexandria, DC-VA-MD-WV	3.2	-0.3	4.2	Ş	85,060	5.5	2.4	0.4	4,965	0.6
Wilmington, DE-MD-NJ	3.6	-0.6	5.2	Ş	89,868	5.4	2.0	-5.2	728	0.6
Lape Loral-Fort Myers, FL	3.2	-0.4	5.5	Ş	40,836	5.8	/.8	8.4	766	1.9
Jacksonville, FL	3.3	-0.4	5.3	Ş	53,101	4.0	8.2	22.2	1,557	1.9
Urlando-Kissimmee-Santord, FL	3.1	-0.5	5.3	\$	58,947	6.6	6.3	14.5	2,610	2.0

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### Arch MI Risk Index for the 100 Largest MSAs

<b>100</b> LARGEST METROPOLITAN		AI	RCH MI RISK IND	EX	% HOME PR	RICE CHANGE	<b>100</b> LARGEST METROPOLITAN	
Statistical Areas Sorted by Risk Ranking, then State, then MSA	ST	RISK RANKING	2019Q1	1-YR. Change	LONG RUN AVG.	1-YR. 2019Q1	1-YR. 2018Q1	Statistical Areas Sorted by Risk Ranking, then State, then MSA
Atlanta-Sandy Springs-Roswell, GA	GA	Minimal	<5	2	18	7.6	10.1	Atlanta-Sandy Springs-Roswell, GA
Chicago-Naperville-Evanston, IL	IL	Minimal	<5	2	31	3.5	4.8	Chicago-Naperville-Evanston, IL
Lake County-Kenosha County, IL-WI	IL	Minimal	<5	2	23	2.5	6.0	Lake County-Kenosha County, IL-WI
Gary, IN	IN	Minimal	<5	2	13	6.5	6.2	Gary, IN
Indianapolis-Carmel-Anderson, IN	IN	Minimal	<5	2	18	8.1	7.7	Indianapolis-Carmel-Anderson, IN
Louisville-Jefferson County, KY-IN	КҮ	Minimal	<5	2	14	5.0	6.0	Louisville-Jefferson County, KY-IN
Baton Rouge, LA	LA	Minimal	10	-2	12	2.8	6.0	Baton Rouge, LA
New Orleans-Metairie, LA	LA	Minimal	10	3	12	3.8	5.0	New Orleans-Metairie, LA
Boston, MA	MA	Minimal	6	4	31	4.6	7.7	Boston, MA
Cambridge-Newton-Framingham, MA	MA	Minimal	<5	2	23	5.8	6.1	Cambridge-Newton-Framingham, MA
Worcester, MA-CT	MA	Minimal	<5	2	20	5.3	7.1	Worcester, MA-CT
Baltimore-Columbia-Towson, MD	MD	Minimal	9	4	24	1.9	4.9	Baltimore-Columbia-Towson, MD
Grand Rapids-Kentwood, MI	MI	Minimal	<5	2	18	9.0	8.4	Grand Rapids-Kentwood, MI
Warren-Trov-Farmington Hills, MI	М	Minimal	<5	2	25	6.1	7.3	Warren-Trov-Farminaton Hills, MI
Minneapolis-St. Paul-Bloomington, MN-WI	MN	Minimal	<5	2	24	5.8	7.5	Minneapolis-St. Paul-Bloomington, MN-WI
Kansas City, MO-KS	MO	Minimal	<5	2	18	7.3	8.7	Kansas City. MO-KS
St. Louis. MO-IL	MO	Minimal	<5	2	11	3.7	5.1	St. Louis. MO-II
Charlotte-Concord-Gastonia NC-SC	NC	Minimal	< 5	2	12	91	8.2	Charlotte-Concord-Gastonia NC-SC
Greenshoro-High Point NC	NC	Minimal	< 5	2	14	6.6	5.4	Greenshoro-High Point NC
Raleiah NC	NC	Minimal	< 5	2	8	91	67	Raleiah NC.
Winston-Salem NC	NC	Minimal	<5	2	16	61	8.6	Winston-Salem NC
Omaha-Council Bluffs NF-IA	NE	Minimal	<5	2	4	5.8	6.7	Omghg-Council Bluffs NF-IA
	NM	Minimal	<5	-7	4	4.1	4.5	
Ins Venns-Henderson-Paradise NV	NV	Minimal	0	6	25	12.8	15.7	Las Venas-Henderson-Paradise NV
Albany-Schenectady-Troy NV	NV	Minimal	0	5	20	2.5	13.7	Albany-Schanectady-Troy NV
Ruffalo_Cheektowaaa_Niaaara Falls_NV	NV	Minimal	0	5	10	71	4.5	Ruffalo_Cheektowaaa_Niaaara Falls_NV
Nassau County-Suffolk County NV	NV	Minimal	0	5	32	5.3	70	Nassau County-Suffolk County NV
New York-Jersey City-White Plains NV-N1	NV	Minimal	2 2	1	20	3.5	6.5	New York- Jersey City, White Digins, NV-N I
Rochester NV	NV	Minimal	0	5	10	5.0	1.0	Rochecter NV
		Minimal	-5	2	10	5.0	4.7	Akron OH
Cincingeti OH KV IN		Minimal	< 5	2	10	5.0	5.4	Cincinnati OH KV IN
Claveland Elvria OH		Minimal	< 0	2	12	0.1	0.0 5 Z	
Clevelalia-Clyria, Off	0H	Minimal	< 5	2	20	0.2	0.0	
Cololingus, Un	0H	Minimal	< 5	2	11	0.4	0.4	Colollibus, On Deuten Kettering, OU
Dayton-Kettering, UH	UH		<5	2	24	0.9	8.8	Dayton-Kettering, UH
Allentown-Betnienem-Easton, PA-NJ	PA		<5	2	18	4.4	4.7	Allentown-Bethlenem-Easton, PA-NJ
Montgomery County-Bucks County-Cnester County, PA	PA		<5	2	2/	5.1	4./	Montgomery County-Bucks County-Chester County, PA
Philadelphia, PA	PA	Minimal	<5	2	23	5.9	7.6	Philadelphia, PA
Pittsburgh, PA	PA	Minimal	<5	2	5	5.6	5.9	Pittsburgh, PA
Providence-Warwick, RI-MA	KI	Minimal	<5	2	30	5.0	7.9	Providence-Warwick, KI-MA
Charleston-North Charleston, SC	SC	Minimal	10	6	23	5.5	9.4	Charleston-North Charleston, SC
Columbia, SC	SC	Minimal	<5	2	13	4.6	7.3	Columbia, SC
Greenville-Anderson-Mauldin, SC	SC	Minimal	<5	2	12	5.3	9.3	Greenville-Anderson-Mauldin, SC
Knoxville, TN	TN	Minimal	<5	2	12	8.2	6.1	Knoxville, TN
Memphis, TN-MS-AR	TN	Minimal	<5	2	14	7.4	6.0	Memphis, TN-MS-AR
Nashville-DavidsonMurfreesboroFranklin, TN	TN	Minimal	<5	-8	10	8.6	9.1	Nashville-DavidsonMurfreesboroFranklin, TN
Ogden-Clearfield, UT	UT	Minimal	<5	2	12	10.2	10.8	Ogden-Clearfield, UT
Salt Lake City, UT	UT	Minimal	9	7	18	9.4	10.6	Salt Lake City, UT
Richmond, VA	VA	Minimal	<5	2	20	4.2	7.0	Richmond, VA
Virginia Beach-Norfolk-Newport News, VA-NC	VA	Minimal	<5	2	24	3.8	3.4	Virginia Beach-Norfolk-Newport News, VA-NC
Milwaukee-Waukesha-West Allis, WI	WI	Minimal	<5	2	20	5.6	5.3	Milwaukee-Waukesha-West Allis, WI

Data sources are listed on page 8.

PLOYMENT	RATE	GROSS M Produ	ETRO Ct	SINGLE-FA Housing St	MILY Tarts	POPU	LATION
1-YR. Change	LONG RUN AVG.	PER CAPITA 2019Q1	1-YR. % Change	PER 1000 PEOPLE 2019Q1	1-YR. % Change	2019Q1 (THS.)	1-YR. % Change
-0.4	5.5	\$ 64,747	4.5	4.6	4.6	5,998	1.1
-0.5	6.4	\$ 76,343	4.5	0.6	-14.3	7,294	0.0
0.6	5.5	\$ 71,893	5.8	1.2	10.6	871	0.1
0.4	6.1	\$ 46,753	3.1	2.7	-15.3	703	0.2
0.1	4.9	\$ 64,013	3.5	3.3	-7.6	2,053	0.4
0.0	5.5	\$ 57,629	2.9	2.6	0.8	1,300	0.3
0.2	5.6	\$ 66,503	5.8	4.3	5.1	832	0.1
0.1	6.0	\$ 60,850	5.3	2.7	19.9	1,271	0.1
-0.5	4.8	\$ 107,380	3.6	0.9	-21.7	2,034	0.3
-0.5	4.5	\$ 88,599	4.4	0.9	-16.8	2,409	0.3
-0.5	5.4	\$ 57,670	3.3	1.5	-13.1	949	0.3
-0.5	5.2	\$ 74,030	3.0	1.8	-8.2	2,819	0.7
-0.7	5.5	\$ 61,615	4.5	2.7	-12.0	1,070	0.2
0.2	6.1	\$ 64,462	4.2	1.6	-30.8	2,574	0.1
0.0	4.1	\$ 72,495	4.3	2.4	-6.4	3,649	0.8
-0.2	5.2	\$ 60,894	4.3	1.9	-34.8	2,148	0.4
-0.1	5.6	\$ 58,890	4.6	1.7	-16.1	2,811	0.2
-0.4	5.8	\$ 61,945	5.0	6.0	-2.6	2,592	1.3
-0.3	5.9	\$ 59,006	4.2	2.7	-7.6	775	1.1
-0.2	4.5	\$ 60,567	4.3	8.5	2.1	1,376	1.4
-0.3	5.5	\$ 44,813	4.4	5.1	7.9	678	1.1
-0.1	3.6	\$ 64,355	4.2	2.7	-22.2	943	0.3
0.0	5.4	\$ 49,630	4.1	1.8	-46.8	918	0.3
-0.5	6.5	\$ 54,283	6.3	4.1	-23.5	2.271	2.3
-0.9	4.7	\$ 83,020	5.6	1.5	-14.8	883	0.0
-1.1	5.9	\$ 80,279	3.9	1.0	-6.0	1,130	0.0
-0.9	4.8	\$ 72,897	2.8	0.5	-38.9	2,838	-0.1
-0.2	6.4	\$ 93,836	4.3	0.5	-12.3	14,248	0.0
-0.9	5.3	\$ 75,210	4.5	1.1	-3.2	1,071	-0.1
0.1	5.9	\$ 58,414	3.5	1.1	-34.0	704	-0.1
0.1	5.4	\$ 62,884	4.9	1.9	-6.8	2,191	0.1
-0.1	5.2	\$ 65,576	3.5	1.4	2.9	2,056	-0.1
0.2	5.0	\$ 66,483	4.9	2.1	-12.9	2,106	0.2
0.2	6.0	\$ 57,056	3.1	1.1	-29.5	806	0.0
-0.4	5.7	\$ 55,768	4.6	1.4	6.2	844	0.2
-0.3	4.5	\$ 80,776	4.4	1.8	-3.6	1,980	0.1
-0.7	6.8	\$ 61,386	4.9	0.6	-1.3	2,150	0.1
-0.6	5.5	\$ 72,663	4.3	1.6	-8.6	2,325	0.0
-0.6	6.4	\$ 56,946	3.6	0.9	-16.7	1,623	0.2
-0.5	5.3	\$ 52,154	4.1	6.8	17.3	792	0.9
-0.6	5.3	\$ 53,518	2.4	5.0	-5.2	837	0.7
-0.5	5.5	\$ 49,287	2.3	6.2	15.4	911	0.8
-0.3	5.0	\$ 52,478	4.4	4.5	7.8	888	0.8
-0.3	6.0	\$ 57,499	4.9	2.2	-6.1	1,357	0.5
-0.3	4.7	\$ 67,084	6.0	6.8	-2.4	1,943	0.9
0.1	4.4	\$ 44,673	6.1	3.9	-4.9	682	1.4
-0.1	4.2	\$ 75,190	6.1	3.6	-30.6	1,235	1.4
-0.4	4.4	\$ 66,476	4.0	3.5	-5.6	1,316	1.0
-0.3	4.6	\$ 61,703	2.6	2.0	-19.1	1,741	0.8
-0.1	5.2	\$ 65,111	4.2	1.0	-10.7	1,580	0.3

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